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Exotic Plant Species Management Strategies and List of Exotic Species in Prioritized Categories for Everglades National Park

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EXOTIC PLANT SPECIES MANAGEMENT STRATEGIES AND LIST OF EXOTIC SPECIES IN PRIORITIZED CATEGORIES FOR EVERGLADES NATIONAL PARK

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TABLE OF CONTENTS

INTRODUCTION 1
EXOTIC PEST PLANT SPECIES LIST 6
LITERATURE CITED 20

Introduction

The unique vegetation and flora of southern Florida have fascinated scientists and naturalists since their discovery, and were a primary reason for the establishment of Everglades National Park. One noteworthy feature of the south Florida flora is the rather high degree of endemism. Approximately 65 taxa are are endemic to southern Florida, and about 25 of these are confined to the small area of slash pine forest in southeastern Florida (Alexander and Crook 1975, Davis 1943, Loope et al. 1979).

The vegetation of southern Florida is unique in the United States, but similar communities occur in the Caribbean and parts of tropical America (Tomlinson 1980). These similar vegetation types are a result of high summer rainfall and relatively warm, dry winters that provide southern Florida with a climate very similar to the Greater Antilles (Long and Lakela 1978, Tomlinson 1980). The sawgrass marshes and mangrove vegetation of the Everglades are similar to these vegetation types in other tropical regions of the world. The tropical hardwood forests ("hammocks") of southern Florida are very similar in species composition to those found at low elevations in the Caribbean islands (Tomlinson 1980). Miami Rock Ridge pine forests are most similar to those of the Bahamas, and bear but little similarity to pine forests of other tropical or temperate regions (Tomlinson 1980).

Everglades National Park (EVER) presently contains an excellent example of southern Florida's original flora and vegetation. A total of about 950 vascular plant species have been recorded here, including about one-half of the species endemic to southern Florida and numerous other rare plant species (Avery and Loope 1980, Avery and Loope 1983, Loope and Avery 1979).

However, the plant communities and individual taxa of southern Florida have proved to be extremely vulnerable to disturbance from human activities. Although the area was

settled late, compared to most eastern states, and was in a near pristine condition prior to 1900, changes occurred so rapidly in the early decades of the 20th century that J.K. Small, a major figure in Florida botany, published a book in 1929 entitled "From Eden to Sahara: Florida's Tragedy," describing the severe deterioration of south Florida's botanical resources that he had observed up to that time. This deterioration has continued, through agriculture, urbanization, drainage, deliberate and accidental burning, and introduction of exotic species, for the sixty years since Small's initial warning.

Exotic plants pose one of the greatest threats to the integrity of Everglades ecosystems. This report lists 221 species of introduced plants that occur in Everglades National Park. This list was created primarily by refering to the list of plants of Everglades National Park by Avery and Loope (1983). Additional species were added to this report based on identification of plants collected or observed in the park by the authors. The listed exotic plant species can be classified into five categories based on current distribution, potential to spread and invade native vegetation, and the corresponding management approach for each group of species. The first category consists of species that are widespread in the park or southern Florida and that have an established, documented potential to invade undisturbed, native plant communities. In most cases, these species are too numerous and widespread for parkwide control with mechanical or chemical methods, given current and projected funding levels. Therefore, these species can only be controlled locally in high value resource areas or when they occur as outlying populations or individuals that will potentially increase the distribution of the species. Examples of high value resource areas include critical habitat for endangered animal species, such as nesting beaches for sea turtles and nesting areas for American crocodiles. These areas have high priority for control of Australian pines (Casuarina equisetifolia) which eliminate nesting habitat by causing severe beach erosion due to their fibrous root systems. Australian pines found on previously uncolonized keys or beaches would also have high priority for treatment. The treatment of such outlying populations has been statistically demonstrated to be the most effective approach to control

the spread of an invasive exotic plant (Moody and Mack 1988, Browder and Schroeder 1981).

The second category contains species with localized populations in the park, but their distribution is expanding rapidly and/or their potential to invade native vegetation in other tropical or subtropical areas has been documented in the literature. These species have a high priority for treatment because they can be controlled parkwide before they become a widespread problem, similar to the species listed in category 1. For example, the Palay rubber vine (Cryptostegia grandiflora), a native of Madagascar, is recorded from only one isolated site in Everglades National Park. However, in tropical Queensland, Australia, this species has invaded 30,000 sq. km., establishing itself along river edges and moving into adjacent forests, where it covers trees up to 30 m tall and chokes out native vegetation (McFadyen in press). Therefore, this species has a high priority for documentation of its current distribution and control in EVER.

The third category contains species that are able to naturalize and spread locally into undisturbed, native vegetation and form dense stands once they have been introduced. Typically, these include large fruited species that lack a long distance dispersal mechanism. However, the distributions of these species need to be documented and then monitored for rapid increases in distribution or population size. These species are prioritized for control relative to the value of the resources that they threaten, and are treated as time and funding allows. The occurrence of these species is usually associated with abandoned homesites or other developed areas, where they have successfully reproduced with populations gradually expanding radially from the original introduction into the surrounding vegetation.

The fourth category consists of species that are widespread in the park or in southern Florida and form dense, monotypic populations, primarily on disturbed sites such as roadsides, canal embankments and agricultural lands. These species are usually identified as "agricultural weeds" in the literature and pose formidable problems on lands that are, or

have been, intensively managed. However, large-scale invasions of undisturbed, native vegetation have never been documented for these species. Therefore, at this time these species are not considered to be threats to native plant communities. The best method for their control is to prevent or mitigate disturbances that are not natural components of the Everglades environment. Included in this category are many weedy, introduced grasses that form dense, monotypic stands on disturbed areas just outside the park, but have not successfully invaded adjacent native vegetation on park lands despite the production of copious, wind-dispersed seeds.

The fifth and largest (157 spp.) category contains all other non-native species that have been listed or observed as occurring in Everglades National Park. These include landscape species and species that persist from cultivation that have not naturalized in the park, and species that are ephemeral (often annual) weeds restricted to disturbed sites and not forming dense populations even on those sites. No management action is planned or needed for these species because they have no potential to invade undisturbed, native vegetation and/or disrupt natural processes.

Management of exotic plants in Everglades National Park is governed by a variety of laws, regulations and policies. Pertinent legislation includes the Organic Act of 1916 (Public Law 235; 39 Stat. 535; 16 USC 1 et seq.) and the park's enabling legislation (48 Stat. 816; 16 USC 410c; May 30, 1934), which call for the preservation of the scenery and natural conditions within the park. Public Law 90-583 (S.2671; October 17, 1968) provides for the control of noxious plants on Federal lands, and Executive Order 11987 (May 24, 1977), "Exotic Organisms", calls for restrictions on the introduction of exotic species into natural ecosystems on Federal lands.

National Park Service policy states that control or eradication of an exotic species will be implemented when that species threatens resources (such as native species, rare or

endangered species, natural ecological communities or processes) on park lands (USDI-NPS 1988). Priority is placed on control programs for exotic species having a high impact on park resources and for which there is a reasonable expectation for successful control. Everglades National Park's General Management Plan (1979) states that the park is to "control exotic plant and animal species when necessary to prevent disruption to native communities."

This species list is intended for use by resource managers as a guide for exotic plant management strategy in Everglades National Park and areas adjacent to the park. It will be used and updated as necessary, in conjunction with mapping and site information that are part of the park's ongoing monitoring program. The species listed here are divided into the five previously described categories. The occurrence of over two hundred exotic species in the park, and over 400 in south Florida, may appear overwhelming. However, only 23 species are currently considered serious threats (categories I and II) and of these, only 5 or 6 occur in more than localized sites with only a few dozen to a few hundred individuals. We developed this list in this fashion to help clarify management approaches to exotic plant control by priority of threat and location, and feasibility/difficulty of control (i.e., extremely large populations and/or accessibility). The above category descriptions as well as those stated in the list, provide a general context regarding management of the species in each category. The individual comments referencing each species discuss the most salient points in regard to management, control, or monitoring.

General information regarding these species is available in the literature and is, therefore, not repeated or discussed here.

This list includes only those exotic species known to occur within Everglades National Park from the plant list for the park (Avery and Loope 1983) and identifications by the authors. Information regarding exotic species in southern Florida, not known to occur within Everglades National Park, is available from the Exotic Pest Plant Council.

Exotic Pest Plant Species List

Category I. Species that are widespread in the Everglades National Park and/or South Florida and have an established potential to invade native plant communities. These species can only be controlled locally in high value resource areas or when they occur as outlying populations or individuals that will potentially increase the range of the species.

Species	Family	Common Name	Comments
Casuarina equisetifolia	Casuarinaceae	Australian pine, ironwood	Widespread in EVER and So. Florida. Fixes nitrogen and may be allelopathic (Smith 1985). Salt tolerant and invades beaches, eliminating nesting sites for turtles and crocodiles.
Colubrina asiatica	Rhamnaceae	Lather leaf	Widespread along southern coastline of EVER and coastal areas elsewhere in So. Florida. Its rambling habit makes control difficult.
Melaleuca quinquenervia	Myrtaceae	Cajeput, paper bark	Widespread in So. Florida, occurring as dense monotypic stands. Localized in EVER and therefore should have high priority for parkwide control.
Schinus terebinthifolius	Anacardiaceae	Brazilian pepper, Christmas berry	Widespread in EVER and So. Florida. Adapted to a variety of habitats from pinelands (Loope & Dunevitz 1981) to mangroves.

Category II. Species that are localized in the park but have a rapidly expanding population, or that have shown a potential to invade native vegetation in other tropical areas. These species have a high priority for parkwide control before they become widespread.

Species	Family	Common Name	Comments
Ardisia humilis (A. solanacia)	Myrsinaceae	Shoebutton ardisia	The population in EVER is expanding rapidly and is very dense in some places. It invades undisturbed hammocks because it is shade tolerant.
Albizia lebbeck	Fabaceae	Woman's tongue	Naturalized throughout So. Florida and has begun to invade the pinelands at Pine Island campground and residence area.
Bischofia javanica	Euphorbiaceae	Toong, bishop wood	Produces copious, bird dispersed fruit. Noted as naturalized in S. Florida by Tomlinson (1980) and Long & Lakela (1976). Listed as occurring in EVER (Avery & Loope 1983). Planted as a landscape tree at Tamiami Ranger Station with seedlings established in the immediate area.
Brassaia actinophylla	Araliaceae	Umbrella tree, octopus tree	Used in landscaping at Pine Island, Headquarters, and has naturalized at the dump. Widespread in lowland valleys in Hawaii and it is a shade tolerant species capable of invading undisturbed forests (Smith 1985).

Cryptostegia grandiflora	Asclepiadaceae	Palay rubber vine	Has invaded 30,000 km² of forest in tropical Queensland, Australia forming impenetrable thickets (McFadyen in press). Persists in EVER from past cultivation (Avery & Loope 1983) at the Lane Homesite at the mouth of the Ferguson River near Everglades City.
Ficus altissima	Moraceae	Banyan tree	Now has capacity to produce copious, viable bird dispersed fruit with the recent introduction of its pollinating wasp species (McKey, in press). Persisting from cultivation at Paradise Key (Avery & Loope 1983).
Ficus benjamina	Moraceae	Weeping fig	Persisting at Royal Palm, landscape at Pine Island, and cultivated at Flamingo (Avery & Loope 1983); possibility of introduced wasp or native wasp pollination of this species, therefore has potential to produce viable seed (McKey, in press).
Ficus elastica	Moraceae	India rubber tree	Landscape at Pine Island (Avery & Loope 1983); possibility of introduced wasp or native wasp pollination of this species, therefore has potential to produce viable seed (McKey, in press).
Ficus microcarpa	Moraceae	Laurel fig	Now has capacity to produce copious, viable, bird dispersed fruit with the introduction of its pollinating wasp species (McKey, in press). Persisting from cultivation at Paradise Key (Avery & Loope 1983).
Grevillia robusta	Proteaceae	Silky oak	Listed as a landscape tree at Pine Island (Avery & Loope 1983). Widely naturalized in Hawaii, often in dense stands (Smith 1985) including natural areas of Hawaii Volcanoes National Park. It has not yet been observed to be as aggressive in South Florida.
Hibiscus tiliaceus	Malvaceae	Mahoe, sea hibiscus	Occurs at Flamingo in EVER. Growth habit can form impenetrable thickets. Naturalized in many tropical regions.
Leucaena leucocephala	Fabaceae	Jumbi bean	Dense, rapidly expanding population at Cape Sable and outliers in Pine Island District. Invades native vegetation in Hawaii (Smith 1985) and other tropical areas.

Muntingia calabura	Elaeocarpaceae	Strawberry tree	Listed as naturalized in Florida by Long & Lakela (1976). Fruit is a red, many seeded, edible berry (Neal 1965) that is probably readily dispersed by birds thus giving this species the potential for wide distribution. Listed as occuring in EVER by Avery and Loope (1983).
Neyraudia reynaudiana	Poaceae	Burma reed	Widespread in So. Florida on disturbed sites. Fire adapted, it has shown potential to invade pinelands in So. Florida (e.g. Larry and Penny Thompson Park). Established in Donut area of EVER, but primarily on disturbed sites.
Oryza rufipogon	Poaceae	Red rice	Described as extremely vigorous and aggressive in its mode of growth in rice fields, where it is generally regarded as a noxious weed (Bor 1960). A small but dense population occurs at the Anhinga Trail, which is the only known population in the United States.
Psidium guajava	Myrtaceae	Guava	Dense stands established in Donut area of EVER and outliers elsewhere. Forms dense thickets on disturbed sites in Hawaii (Smith 1985) and other tropical areas. Appears to be principally on disturbed sites in South Florida (Tomlinson 1980).
Syzygium jambos (Eugenia jambos)	Myrtaceae	Rose Apple	Naturalized and expanding in Paradise Key, EVER. Invades undisturbed forest and forms dense, monotypic stands in Hawaii (Smith 1985).
Thespesia populnea	Malvaceae	Cork tree	Naturalized populations occur in the Key Largo, Flamingo and Everglades City districts of EVER. Floating seeds enable it to disperse by water to coastal areas. Also naturalized in lowlands of Hawaii.
Urena lobata	Malvaceae	Caesar's weed	Listed as occurring in EVER (Avery & Loope 1983). Declared a noxious weed in Fiji (Mune & Parham 1967).

Category III. Species that are able to naturalize and spread locally into undisturbed vegetation, sometimes forming dense stands, once they have been introduced to a site. These species are prioritized relative to the value of the resources that they threaten, controlled as time and funding allows, and monitored for rapid increases in distribution or population size.

Species	Family	Common Name	Comments
Agave sisalana	Agavaceae	Sisal	Persistent from plantation at Cape Sable. Produces numerous vegetative bulbils rather than seeds which disperse locally and form dense, monotypic stands (Hawaii Volcanoes National Park).
Archontophoenix alexandrae	Arecaceae	Alexander palm	Reproducing in Pine Island residence area. Forms dense stands spreading from old homesites in Hawaii.
Bauhinia variegata (B. purpurea)	Fabaceae	Orchid tree, camel's foot tree	Planted as a landscape tree at EVER (Avery & Loope 1983). Reproducing and spreading at the Pine Island residence area.
Calophyllum inophyllum	Clusiaceae	Alexandrian laurel, mast wood	Planted at EVER. Reproducing and spreading in Paradise Key and Pine Island. Common in coastal and littoral forests of Pacific islands (Whistler 1980).
Cassia fistula	Fabaceae	Golden shower	Persists from cultivation at Paradise Key (Avery & Loope 1983). Volunteer sapling at Pine Island residence area in pines.
Casuarina glauca	Casuarinaceae	Suckering Australian pine	Widely planted in So. Florida. Viable seed production has never been documented for this species, but it produces copious root sprouts (suckers) and can thereby form locally dense stands. Listed as persisting at Shark Valley Tower, EVER (Avery & Loope 1983), but these trees were successfully treated in 1984.
Clusia rosea	Clusiaceae	Pitch apple	Can establish epiphytically. Naturalized in lowlands of Hawaii (Stemmerman 1986). Planted at Flamingo and Pine Island (Avery & Loope 1983).
Dioscorea bulbifera	Dioscoreaceae	Air potato	Vine species, rapidly spreading at Paradise Key, known to dominate understory of hammocks in South Florida. Growth habit and reproductive capacity present a potentially serious threat.
Eriobotrya japonica	Rosaceae	Loquat	Planted as a landscape plant in EVER. Reproducing and spreading at Paradise Key. Observed to form dense, localized stands in other tropical areas.
Furcraea cabuya	Agavaceae	Central American sisal	Reproduces by bulbils similar to Agave. F. foetida has naturalized in Mauritius, Malagasy, India and Hawaii (Neal 1965, Smith 1985). A locally expanding population exists in Paradise Key, EVER.
Indigofera spicata (I. endecaphylla)	Fabaceae	Creeping indigo	Naturalized in South Florida hammocks, trail sides (Long & Lakela 1976).

Jasminum sambac	Oleaceae	Arabian jasmine	Naturalized in South Florida hammocks (Long & Lakela 1976). Shrubby climber.
Macfadyena unguis-cati	Bignoniaceae	Cat's claw creeper	High climbing vine with tendrils that have a "hook". Naturalized in the Bahamas (Correll and Correll 1982). Persisting from cultivation at Paradise Key (Avery & Loope 1983).
Manilkara zapota	Sapotaceae	Sapodilla	Planted at EVER. Reproducing and spreading in Paradise Key and at Pine Island.
Nephrolepis hirsutula "superba"	Davalliaceae	Petticoat fern	Locally expanding population in Paradise Key, EVER.
Scindapsus aureus (Pothos aureus) (Epipremnum pinnatum)	Araceae	Ivy arum	Rapidly spreading vine at Paradise Key, covering the ground and the trunks of trees over a continuously expanding area.
Selaginella willdenovii	Selaginaceae	Peacock fern	Locally expanding population in Paradise Key, EVER.
Syngonium podophyllum	Araceae	Nephthytis	Vine species, rapidly spreading at Paradise Key.
Terminalia catappa	Combretaceae	Indian almond, Chinese almond	Seeds probably dispersed by water. Widely naturalized in Hawaii in mesic to wet coastal areas (Smith 1985) and is invading inshore areas in Cayman Islands (Sauer 1982). Persisting at Shark Valley and Royal Palm (Avery & Loope 1983).
Thevetia peruviana	Apocynaceae	Lucky nut	Naturalized in coastal areas of So. Florida (Long & Lakela 1976). All parts of plant are very poisonous to humans and livestock (Neal 1965).
Wedelia trilobata	Asteraceae	Wedelia	Expanding locally into surrounding vegetation from planting at Hayes Barn in the Hole-in-the-Donut.

Category IV. Species that are widespread in the park and/or South Florida and can form dense, monotypic populations, but primarily on disturbed sites such as roadsides, agricultural lands and canal embankments. These species are controlled by the prevention or mitigation of disturbances that are not natural components of the Everglades environment. At this time these species are not considered to be threats to native communities.

Species	Family	Common Name	Comments
Abrus precatorius	Fabaceae	Rosary pea	Twining vine that can form dense mats on top of supporting plants. Seed very poisonous. Treated in South Florida State Parks.
Brachiaria mutica	Poaceae	Para grass, California grass	Weedy in Hawaii. Occurs in Donut. Brought to South Florida from Africa for use as pasture for cattle.

Crotalaria spectabilis	Fabaceae	Showy rattlebox	Declared noxious by State of Hawaii. May be poisonous to livestock under certain conditions (Haselwood & Motter 1983).
Cynodon dactylon	Poaceae	Bermuda grass	Weed in Hawaii and throughout the outer Leeward Islands of the West Indies (Smith 1985).
Cyperus rotundus	Cyperaceae	Purple nut grass	Declared noxious in Hawaii. Spreads rapidly by underground stems and tubers, which makes control difficult (Haselwood & Motter 1983).
Desmodium tortuosum	Fabaceae	Florida beggarweed	Roadside, trailside and pasture weed dispersed by fruit (pod) that sticks to fur or clothing (Stemmerman 1986).
Digitaria ciliaris	Poaceae	Southern crabgrass	
Echinochloa colona	Poaceae	Jungle rice	Can be a problem weed in irrigated areas and along roadsides. Annual; grows quickly in wet season, dies out in dry season.
Eichhornia crassipes	Pontederiaceae	Water-hyacinth	Aquatic weed that becomes a problem in areas that have unnaturally high nutrient levels (Morris 1974).
Hydrilla verticillata	Hydrocharitaceae	Water lettuce	Aquatic weed that becomes a problem in areas that have unnaturally high nutrient levels.
Hyparrhenia rufa	Poaceae		Spreading rapidly in lowlands of Hawaii Volcanoes National Park.
Ipomoea hederacea (Merremia hederacea)	Convolvulaceae		Naturalized in Florida (Long & Lakela 1976). Can form dense mats on top of other vegetation on disturbed sites.
Melinus minutiflora	Poaceae	Molasses grass	Widespread, fire adapted weed in Hawaii producing extremely high fuel loads in Hawaii Volcanoes National Park (Smith 1985).
Panicum maximum	Poaceae	Guinea grass	Strong allelopathic activity (Chou & Young 1975). Fire adapted (Smith 1985).
Paspalum urvillei	Poaceae	Vasey Grass	Rapidly spreading in Hawaii.
Pennisetum purpureum	Poaceae	Napier grass, elephant grass	A large grass from tropical Africa may be adapted to frequent fire. Found in the Donut, but not listed in Avery & Loope (1983).
Rhynchelytrum repens	Poaceae	Natal red top	
Stenotaphrum secundatum	Poaceae	St. Augustine grass	Creeping into native forest from roadsides in Hawaii Volcanoes National Park.
Thunbergia fragrans	Acanthaceae	White thunbergia	Vine that can form dense mats on top of supporting vegetation. Ubiquitous in lowlands of Hawaii.

Triumfetta semitrilobata	Tiliaceae	Burweed	Declared noxious by State of Hawaii. Spreads rapidly, crowding out other palnts (Haselwood & Motter 1983).

Category V. Other non-native plant species growing within Everglades National Park. These species persist from cultivation, are landscape plantings that have not naturalized in the park, or are species that are ephemeral (often annual) weeds restricted to disturbed sites and not forming dense populations. No management action is planned for these species. Comments are derived from Avery and Loope (1983) or personal obervations of the authors unless otherwise noted.

Species	Family	Common Name	Comments
Agave americana	Agavaceae	Century plant	Planted at Flamingo (Avery & Loope 1983). Does not produce bulbils as does A. sisalana (Long & Lakela 1976).
Acalypha wilkesiana cv. "Godseffiana"	Euphorbiaceae		Landscape at Pine Island.
Acalypha wilkesiana cv. "Macafeeana"	Euphorbiaceae	Copper Leaf	Landscape at Pine Island.
Alysicarpus vaginalis	Fabaceae	Alice Clover	
Amaranthus lividus	Amaranthaceae		
Amaranthus spinosus	Amaranthaceae		
Anagallis arvensis	Primulaceae	Pimpernel	
Araucaria columnaris	Araucariaceae	Cook pine	Landscape at Pine Island; Cultivated at Flamingo.
Asperagus densiflorus	Liliaceae	Asperagus fern	Cultivated at Flamingo.
Billbergia pyramidalis	Bromeliaceae	Foolproof plant	Persisting at Royal Palm.
Blechum brownei	Acanthaceae		
Boerhavia diffusa	Nyctaginaceae	Red spiderling	
Bothriochloa adspersa	Poaceae		
Bougainvillea glabra	Nyctaginaceae	Paper flower	Landscape at Pine Island.
Brassica rapa	Brassicaceae	Field mustard	
Bucida buceras	Combretaceae	Black olive	Persists from past cultivation. Described in error as native to Florida (Tomlinson 1980).

Callistemon viminalis	Mytraceae	Weeping bottlebrush	Persists from cultivation.
Calocasia esculenta	Araceae	Taro	Polynesian food staple. Persists from past cultivation.
Calophyllum antillanum (C. calaba)	Clusiaceae	Santa maria	
Calystegia sepium	Convolvulaceae	Hedge bindweed	
Cardamine pensylvanica	Brassicaceae	Bitter cress	
Carica papaya	Caricaceae	Papaya	
Carissa macrocarpa	Apocynaceae	Natal plum	Landscape at Pine Island; cultivated at Flamingo.
Catharanthus roseus	Apocynaceae	Madagascar periwinkle	Persisting at Shark Valley.
Cereus peruvianus	Cactaceae	Hedge cactus	Cultivated at Flamingo.
Cereus undatus	Cactaceae	Night blooming cereus	Persisting at Royal Palm and Shark Valley.
Cestrum nocturnum	Solanaceae	Night blooming jasmine	Landscape at Pine Island.
Chamaedorea seifritzii	Arecaceae	Reed palm	Cultivated at Flamingo.
Chamaesyce opthalmica	Euphorbiaceae		
Chenopodium album	Chenopodiaceae	Lamb's quarters	
Chloris radiata	Poaceae		
Chrysalidocarpus lutescens	Arecaceae	Yellow palm	Persisting at Royal Palm; cultivated at Flamingo.
Citrus aurantium	Rutaceae	Sour orange	Persists from cultivation.
Citrus X limonium	Rutaceae	Rangpur lime	Persists from cultivation.
Citrus X paradisi	Rutaceae	Grapefruit	Persists from cultivation.
Citrus sinensis	Rutaceae	Sweet orange	Persists from cultivation.
Clerodendrum speciosissimum	Verbenaceae	Java glory bower	
Cocos nucifera	Arecaceae	Coconut palm	

Codiaeum variegatum var. pictum	Euphorbiaceae	Croton	Persisting at Royal Palm; landscape at Pine Island.
Corchorus hirtus	Tiliaceae		
Corchorus siliquosus	Tiliaceae		
Cordyline fruticosa	Liliaceae	Ti	Landscape at Pine Island; cultivated at Flamingo.
Coronopus didymus	Brassicaceae	Wart Cress	
Crinum zeylanicum (C. latifolium var. zeylanicum)	Liliaceae	Milk and wine lily	Landscape at Pine Island.
Crotalaria incana	Fabaceae		
Cuphea carthagenensis	Lythraceae		
Cycas circinalis	Cycadaceae	Sago palm	Landscape at Pine Island; cultivated at Flamingo.
Cycas revoluta	Cycadaceae	Sago palm	Cultivated at Flamingo.
Cyperus alternifolius	Cyperaceae	Umbrella plant	Persisting at Royal Palm.
Cyperus iria	Cyperaceae		
Cyperus papyrus	Cyperaceae	Papyrus	Persists from past cultivation.
Dactyloctenium aegyptium	Poaceae	Crowfoot grass	
Delonix regia	Fabaceae	Royal poinciana	Persists from past cultivation; seedlings under parent tree at Paradise Key, but apparently none survive or establish away from parent tree.
Dichanthium aristatum	Poaceae		
Digitaria setigera	Poaceae		
Dracaena marginata	Agavaceae	Madagascar dragon tree	Cultivated at Flamingo.
Drymaria cordata	Caryophyllaceae	West Indian chickweed	
Eremochloa ophiuroides	Poaceae	Centipede grass	
Eleusine indica	Poaceae	Goose grass	
Eragrostis atrovirens	Poaceae		

Eragrostis bahiensis	Poaceae		
Eragrostis barrelieri	Poaceae	Mediterranean lovegrass	
Erucastrum gallicum	Brassicaceae	Dog mustard	
Erysimum cheiranthoides	Brassicaceae	Wormseed mustard	
Eugenia uniflora	Myrtaceae	Surinam cherry	Persisting a Royal Palm.
Euphorbia milii	Euphorbiaceae	Crown of thorns	Landscape at Pine Island.
Fimbristylis dichotoma	Cyperaceae		
Fimbristylis spathacea	Cyperaceae	Hurricane grass	
Heliotropium polyphyllum var. leavenworthii	Boraginaceae		
Hibiscus rosa-sinensis	Malvaceae	Hibiscus	Persists from cultivation.
Hibiscus schizopetalus	Malvaceae	Fringed hibiscus	Persists from cultivation.
Hyophorbe verschaffeltii	Arecaceae	Spindle palm	Landscape at Pine Island.
Hyptis mutabilis var. spicata	Lamiaceae		
Hyptis spicigera	Lamiaceae		
Ipomoea quamoclit	Convolvulaceae	Cypress vine	
Ixora coccinea	Rubiaceae	Ixora	Landscape at Pine Island.
Kalanchoe daigremontiana	Crassulaceae	Devil's backbone	Landscape at Pine Island.
Kalanchoe tubiflora	Crassulaceae	Chandelier plant	
Lantana montevidensis	Verbenaceae		
Lantania lontaroides	Arecaceae	Red lantan	Persisting at Royal Palm.
Launaea intybacea	Asteraceae	Wild lettuce	
Leonotis nepetaefolia	Lamiaceae	Lion's ear	

Ligustrum japonicum	Oleaceae	Japanese privet	Landscape at Pine Island; cultivated at Flamingo.
Lindernia crustacea	Scrophulariaceae		
Livistona chinensis	Arecaceae	Chinese fan palm	Landscape at Pine Island.
Macroptilium lathyroides (Phaseolus lathyroides)	Fabaceae		
Mangifera indica	Anacardiaceae	Mango	Persisting at Royal Palm and Shark Valley.
Manihot esculenta	Euphorbiaceae	Tapioca plant	Persists from past cultivation.
Mazus pumilus	Scrophulariaceae		
Medicago lupulina	Fabaceae	Black medik	
Medicago sativa	Fabaceae	Alfalfa	
Melicoccus bijugatus	Sapindaceae	Spainish lime	Persists from cultivation.
Melilotus alba	Fabaceae	Sweet clover	
Monstera deliciosa	Araceae	Ceriman	Persisting at Royal Palm; landscape at Pine Island.
Musa acuminata cv. "Dwarf Cavendish"	Musaceae	Dwarf banana	Landscape at Pine Island.
Musa X paradisiaca	Musaceae	Banana	Persists from past cultivation.
Nephrolepis multiflora	Davalliaceae		
Nelumbo nucifera	Nymphaeaceae	Sacred lotus	Persists from cultivation.
Nymphaea capensis var. zanzibariensis	Nymphaeaceae	Cape blue water lily	Persisting at Royal Palm.
Oryza sativa	Poaceae	Rice	
Oxalis corniculata	Oxalidaceae	Creeping sourgrass	
Oxalis intermedia	Oxalidaceae		
Pandanus tectorius	Pandanaceae	Screw pine	Persisting at Royal Palm.

Parthenium hysterophorus	Asteraceae		
Paspalum fimbriatum	Poaceae		
Paspalum notatum	Poaceae	Bahia grass	Planted on roadsides in park.
Pedilanthus tithymaloides subsp. smallii cv. "Variegatus"	Euphorbiaceae	Redbird flower	Landscape at Pine Island.
Peltophorum inerme	Fabaceae	Yellow poinciana	Landscape at the Beard Center
Persea americana	Lauraceae	Avocado	
Philodendron domesticum	Araceae	Spade leaf phildendron	Landscape at Pine Island.
Philodendron selloum	Araceae	Tree philodendron	Cultivated at Flamingo.
Phoenix reclinata	Arecaceae	Senegal date palm	Persisting at Royal Palm.
Phoenix roebelenii	Arecaceae	Pygmy date palm	Landscape at Pine Island; cultivated at Flamingo.
Pittosporum tobira	Pittosporaceae	Mock orange	Cultivated at Flamingo.
Pityogramma trifoliata	Pteridaceae	Gold fern	
Plantago major	Plantaginaceae	Plantain	
Plumeria rubra forma acutifolia	Apocynaceae	Frangipani	Landscape at Pine Island.
Poinsettia pulcherrima	Euphorbiaceae	Poinsettia	Landscape at Pine Island.
Polygonum lapathifolium	Polygonaceae		
Polypogon monspeliensis	Poaceae	Rabbitfoot grass	
Polyscias grilfoylei	Araliaceae	Aralia	Landscape at Pine Island.
Portulaca oleracea	Portulacaceae	Purslane	
Pseudo-elephantopus spicatus	Asteraceae		
Ptychosperma elegans	Arecaceae	Solitaire palm	Landscape at Pine Island.
Ravenala madagascariensis	Strelitziaceae	Traveler's palm	Persisting at Royal Palm.

Rhoeo spathacea	Commelinaceae	Oyster plant	
Rosa sp.	Rosaceae	Rose	Landscape at Pine Island.
Rottboellia exaltata	Poaceae	Itchgrass	
Ruellia brittoniana	Acanthaceae		Same genus as two native species.
Russelia equisetiformis	Scrophulariaceae	Fountain plant	Persisting at Royal Palm.
Sansevieria hyacinthoides	Agavaceae	Bowstring hemp	Common indoor potted plant.
Selenicereus pteranthus	Cactaceae	Snake cactus	Persisting at Royal Palm.
Sesbania vesicaria (Glottidium vesicaria)	Fabaceae		
Setcreasea pallida	Commelinaceae	Purple queen	Landscape at Pine Island.
Sida cordifolia	Malvaceae	Ilima	
Sonchus oleraceus	Asteraceae	Sow thistle	
Sorghum bicolor	Poaceae	Sorghum	Persists from past cultivation.
Sorghum halepense	Poaceae	Johnson grass	
Spondias purpurea	Anacardiaceae	Hog plum	
Sporobolus pyramidalis var. jacquemontii	Poaceae		
Stachys floridana	Lamiaceae		Native to central and northern Florida, but thought to be exotic to south Florida.
Stemodia durantifolia	Scrophulariaceae		
Syagrus romanzoffianum (Arecastrum romanzoffianum)	Arecaceae	Queen palm	Persisting at Royal Palm.
Talinum paniculatum	Portulacaceae		
Tridax procumbens	Asteraceae		
Trifolium repens	Fabaceae	White colver	

Turnera ulmifolia var. ulmifolia	Turneraceae	Yellow alder	
Veitchia merrillii	Arecaceae	Christmas palm	Persisting at Royal Palm; landscape at Pine Island.
Verbena brasiliensis	Verbenaceae		
Vernonia cinerea	Asteraceae		
Veronica peregrina	Scrophulariaceae	Neckweed	
Waltheria indica	Sterculiaceae		
Washingtonia robusta	Arecaceae	Desert palm	Persisting at Royal Palm.
Youngia japonica	Asteraceae		
Yucca elephantipes	Agavaceae	Spineless yucca	Cultivated at Flamingo.
Zea mexicana	Poaceae	Teosinte	
Zeuxine strateumatica	Orichidaceae		

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